

selects the one wheel sensor as a function of the actual driving condition and at least one defined speed criterion.

As will be discussed below, each of the references applied in the rejection have a single sensor per wheel.

Claim 1 has been amended to clarify the meaning of a "wheel group" and its relationship to the at least two wheel speed sensors. The present invention uses two wheel speed sensors assigned to measure the speed of each wheel. In the case of a wheel group, the two speed sensors are assigned to measure a common speed of the wheel group. It does this by either each one measuring the speed of a single wheel in the group or two different wheels in the group. The sensors are considered to be measuring a common speed. The sensors are not measuring an individual speed of each wheel to be used in the further calculation. Thus, for example, two wheels connected to a common axle are considered a wheel group and may have their individual speeds measured but considered a measurement of a common speed. The present invention provides for at least two channels for wheel speed signals. If the sensors of each wheel operate correctly, their signals should be equal. However, if one of the sensors of each wheel provides for an erroneous signal, then the claimed electronic unit must decide which one of the signals is to be considered as the correct signal and which one has to be disregarded. The electronic unit is selecting the respective "correct" signal as a function of the actual driving condition (like accelerating, braking or traveling) and at least one defined speed criterion (for example, second highest wheel speed, extreme-value criterion, minimal wheel speed).

Murayama obviously uses only one single sensor for each wheel. The vehicle, as shown in Figure 1, has four wheels (FL, FR, RR, RL) and four sensors. For evaluating which one of the wheels corresponds best with the vehicle traveling speed, a speed computing circuit 10 calculates from these four input signals and from an acceleration circuit 11 a speed signal, which is interpreted as corresponding with the vehicle traveling speed.

Mueller shows the same, namely that each wheel (102vr, 102vl, 102hr, 102hl) is assigned only one single rotational speed sensor 103vr, 103vl, 103hr, 103hl. These signals are fed to a common control device 4. Ohtsu also uses only one sensor for each wheel. Yoshino also shows one single speed sensor (1A, 1B, 1C, 1D) for each wheel (W1, W2, W3, W4). The output signals of the sensors are fed to a common wheel speed calculator 3.

Under some conditions, like skidding during braking or accelerating, the measured wheel speed does not correspond with the vehicle traveling speed. In summary, the four applied references do not teach at least two wheel speed sensors for each wheel or wheel group. In contrast, they teach one wheel speed sensor for each wheel or wheel group.

Submitted herewith is an Information Disclosure Statement ("IDS"), including a European Search Report and the references cited therein in a corresponding German application. It will be noted that all of the references cited are classified as technical background. The IDS also includes German Patent DE 100 26 685, which was cited in the corresponding German application and which corresponds to US Patent Application No. 10/296,913. The patents referenced in the German Patent '685 and provided by the Applicant as part of the PCT are also enclosed with the IDS.

Upon review of the amended claims and the above arguments, it will be evident that Claims 1-16 are novel and thus passage of this case to issue is respectfully solicited.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg, Deposit Account No. 02-1010 (566/39038).

Respectfully submitted,

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Enclosure

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CLAIM SUMMARY DOCUMENT

1. (Currently Amended) A vehicle brake system comprising:
at least two wheel speed sensors assigned to measure for a speed of each wheel or a common speed of each wheel group whose speed is to be measured;
an electronic unit for analyzing signals from the wheel sensors to instantaneously select the signals from one of the wheel sensors and determining a reference speed approximating the actual vehicle speed using the selected signals; and
the electronic unit selecting the one wheel sensor as a function of the actual driving condition and at least one defined speed criterion.

2. (Original) The vehicle brake system according to Claim 1, wherein there are only two wheel sensors provided for each wheel or wheel group whose speed is to be measured.

3. (Original) The vehicle brake system according to Claim 1, wherein for a braked vehicle, the wheel sensor which indicates the second-highest wheel speed is selected.
(Q1)

4. (Original) The vehicle brake system according to Claim 1, wherein for an unbraked vehicle, the wheel sensor which indicates the second-lowest wheel speed is selected.

5. (Original) The vehicle brake system according to Claim 1, wherein one sensor for each wheel or group of wheels is initially selected using a first speed criterion; and one of the initially selected sensors is finally selected, using a second speed criterion, and used to determine the reference speed.

6. (Original) The vehicle brake system according to Claim 5, characterized in that the first and the second speed criterion are in each case an extreme-value criterion.

7. (Currently Amended) The vehicle brake system according to Claim 5, wherein for a braked vehicle, the wheel sensor with the minimal wheel speed is initially

selected from the respectively at least two wheel sensors assigned to each wheel or wheel group; and the initially selected sensor having the maximal speed is finally selected.

8. (Currently Amended) The vehicle brake system according to Claim 5, wherein for an unbraked vehicle, the wheel sensor with the maximal wheel speed is initially selected from the respectively at least two wheel sensors assigned to each wheel or wheel group; and the initially selected sensor having the minimal speed is finally selected.

9. (Original) The vehicle brake system according to Claim 1, wherein the electronic unit is an ABS/ASR control unit.

10. (Original) The vehicle brake system according to Claim 9, wherein for an ABS control intervention of the brake pressure control of a wheel or of a wheel group, a higher speed of the speeds supplied by the at least two assigned wheel sensors is used as a basis when a protection against an erroneous reduction of the brake force has the highest priority.

11. (Original) The vehicle brake system according to Claim 9, wherein for an ABS control intervention of the brake pressure control of a wheel or of a wheel group, a lower speed of the speeds supplied by the at least two assigned wheel sensors is used as a basis when a protection against a locking of the wheel or of the wheel group has the highest priority.

12. (Original) The vehicle brake system according to Claim 9, wherein for an ASR control intervention of the brake pressure control of a wheel or of a wheel group, a lower speed of the speeds supplied by the at least two assigned wheel sensors is used as a basis when a protection against an erroneous reduction of the traction force at the wheel or the wheel group has the highest priority.

13. (Original) The vehicle brake system according to Claim 9, wherein for an ASR control intervention of the brake pressure control of a wheel or of a wheel group, a higher speed of the speeds supplied by the at least two assigned wheel sensors is used as a

basis when a protection against a spinning of a wheel or of the wheel group has the highest priority.

14. (Currently Amended) The vehicle brake system according to Claim 1, including a plausibility checking device which subjects the signals supplied by the wheel speed sensors to a plausibility check; and wherein the electronic unit does not consider sensors which supply signals that do not pass the plausibility check.

15. (Currently Amended) The vehicle brake system according to Claim 1, wherein for a braked vehicle, the wheel sensor with the minimal wheel speed is initially selected from the respectively at least two wheel sensors assigned to each wheel or wheel group; and the initially selected sensor having the maximal speed is finally selected.

16. (Currently Amended) The vehicle brake system according to Claim 1, wherein for an unbraked vehicle, the wheel sensor with the maximal wheel speed is initially selected from the respectively at least two wheel sensors assigned to each wheel or wheel group; and the initially selected sensor having the minimal speed is finally selected.